

**CLAIMS:**

What is claimed is:

1. A method of processing a bit operation instruction, comprising:  
  
    fetching and decoding a find first bit instruction;  
  
5       executing the find first bit instruction on a source operand to calculate a result  
  
corresponding to the first bit position meeting the criteria of the instruction;  
  
    storing the result.
- 10   2. The method according to claim 1, further comprising setting a zero flag within a status  
    register when none of the bit positions meet the criteria of the instruction.
- 15   3. The method according to claim 1, wherein the instruction is a find first zero instruction.
- 20   4. The method according to claim 3, wherein the find first zero instruction finds the first zero  
    from the left side of a memory location.
5. The method according to claim 3, wherein the find first zero instruction finds the first zero  
    from the left side of a memory location.
- 25   6. The method according to claim 1, wherein the instruction is a find first one instruction.
7. The method according to claim 6, wherein the find first one instruction finds the first one  
    from the left side of a memory location.

8. The method according to claim 3, wherein the find first one instruction finds the first one from the left side of a memory location.

5 9. The method according to claim 1, wherein the instruction is a find first bit change instruction.

10. The method according to claim 9, wherein the find first bit change instruction finds the first bit change from the left side of a memory location.

10 11. The method according to claim 9, wherein the find first bit change instruction finds the first bit change from the right side of a memory location.

15 12. The method according to claim 1, wherein the find first bit instruction specifies the source operand.

13. The method according to claim 1, wherein the find first bit instruction specifies a byte of a memory location that stores the source operand.

14. A processor for find first instruction processing, comprising:

20 a program memory for storing instructions including a find first bit instruction;

a program counter for identifying current instructions for processing;

an arithmetic logic unit (ALU) for executing instructions within the program memory, the ALU including bit operation logic for executing the find first bit instruction on a source operand to calculate a result corresponding to the first bit position meeting the criteria of the instruction.

- 5 15. The processor according to claim 14, further comprising setting a zero flag within a status register when none of the bit positions meet the criteria of the instruction.
16. The processor according to claim 14 wherein the instruction is a find first zero instruction.
- 10 17. The processor according to claim 16, wherein the find first zero instruction finds the first zero from the left side of a memory location.
- 15 18. The processor according to claim 16, wherein the find first zero instruction finds the first zero from the right side of a memory location.
19. The processor according to claim 14, wherein the instruction is a find first one instruction.
20. The processor according to claim 19, wherein the find first one instruction finds the first one from the left side of a memory location.
- 20 21. The processor according to claim 19, wherein the find first one instruction finds the first one from the right side of a memory location.

22. The processor according to claim 14, wherein the instruction is a find first bit change instruction.

23. The processor according to claim 22, wherein the find first bit change instruction finds the first bit change from the left side of a memory location.

24. The processor according to claim 22, wherein the find first bit change instruction finds the first bit change from the right side of a memory location.